

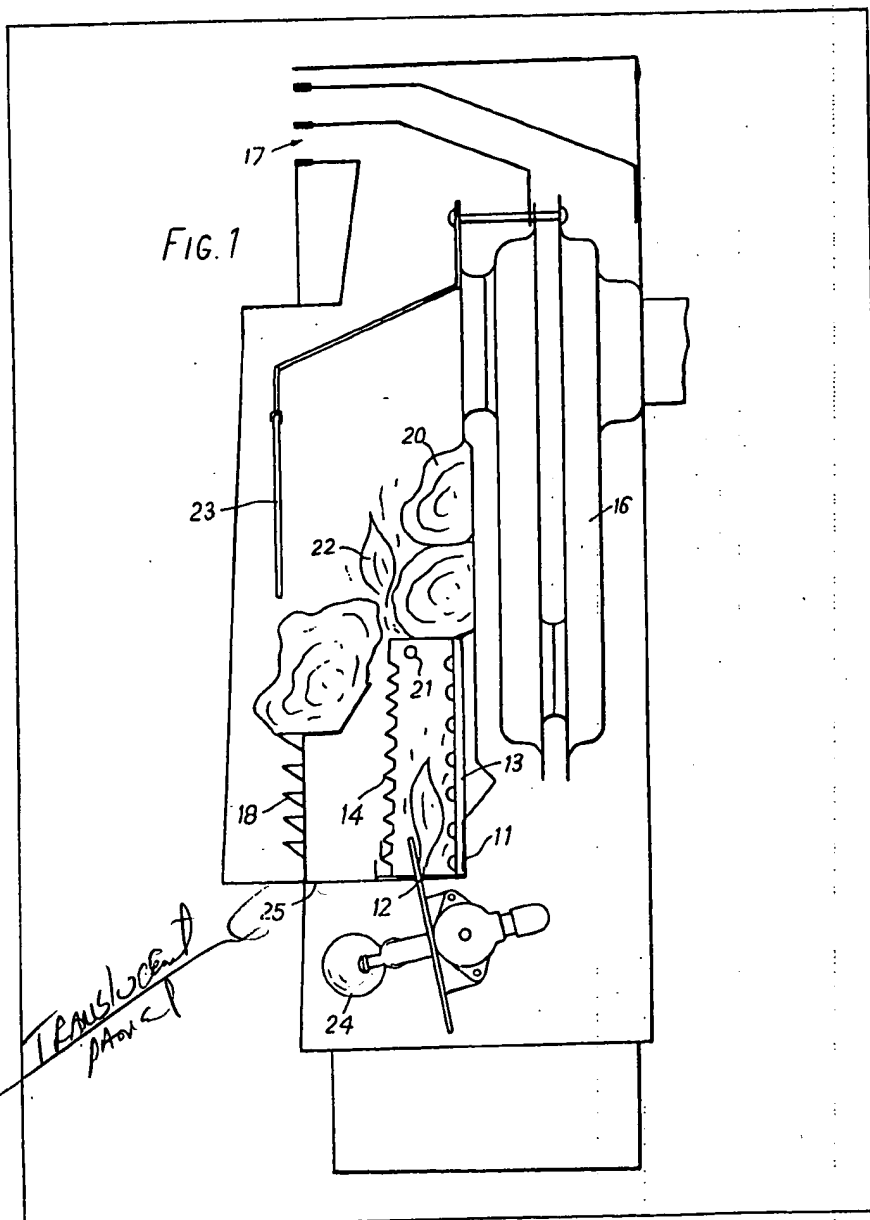
(12) UK Patent Application (19) GB (11) 2 081 885 A

- (21) Application No 8024390
- (22) Date of filing 25 Jul 1980
- (43) Application published
24 Feb 1982
- (51) INT CL³
F24C 3/04
- (52) Domestic classification
F4W 46A 46B
- (56) Documents cited
GB 1488479
GB 380352
GB 284867
GB 266152
- (58) Field of search
F4W
- (71) Applicants
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(54) Simulated solid fuel gas fire

(57) A gas fire has a substantially ver-

tical radiant 11, an aerated gas burner 12 directed substantially vertically to heat the radiant, solid fuel-simulating material 20 integral with or adjacent the radiant, and a non-aerated gas burner 21 located above the burner 12 to direct a flickering flame amongst the fuel simulating material. A glass panel 23 closes part of the front of the fire. The front-to-back dimension of the fire is kept small in relation to its height.



The drawing(s) originally filed was/were informal and the print here reproduced is taken from a later filed formal copy

FIG. 1

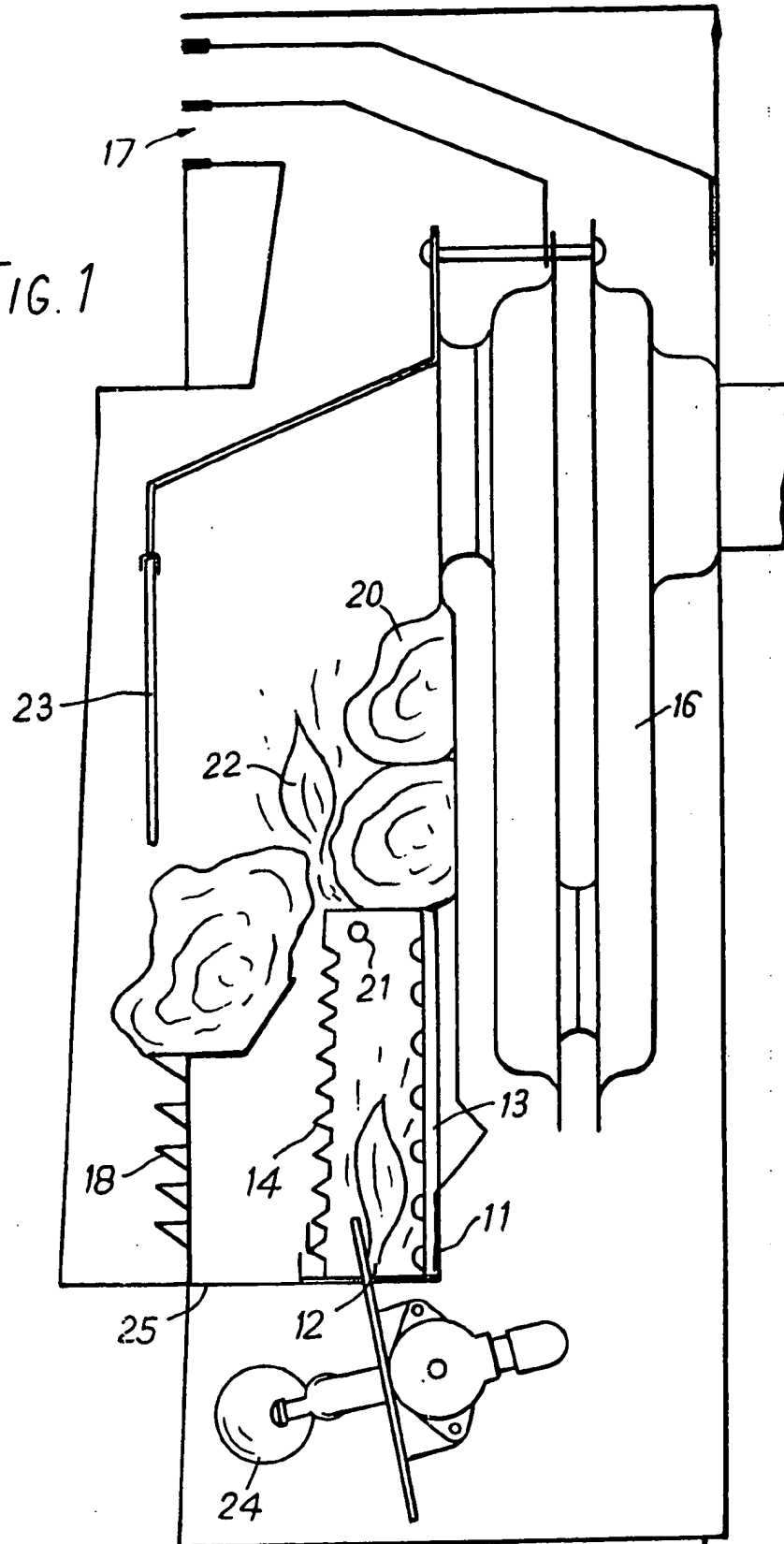


FIG. 1a

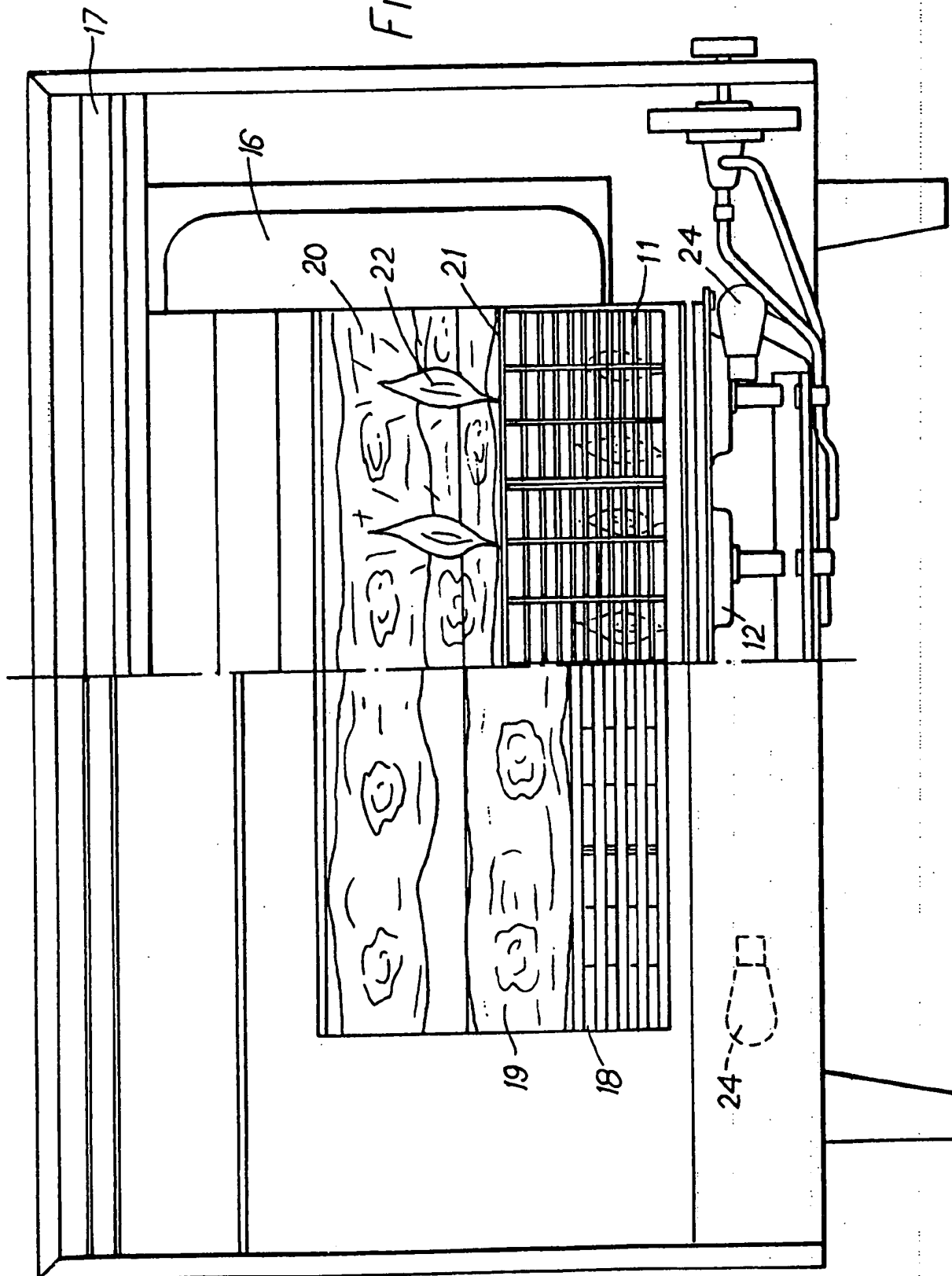


FIG. 2

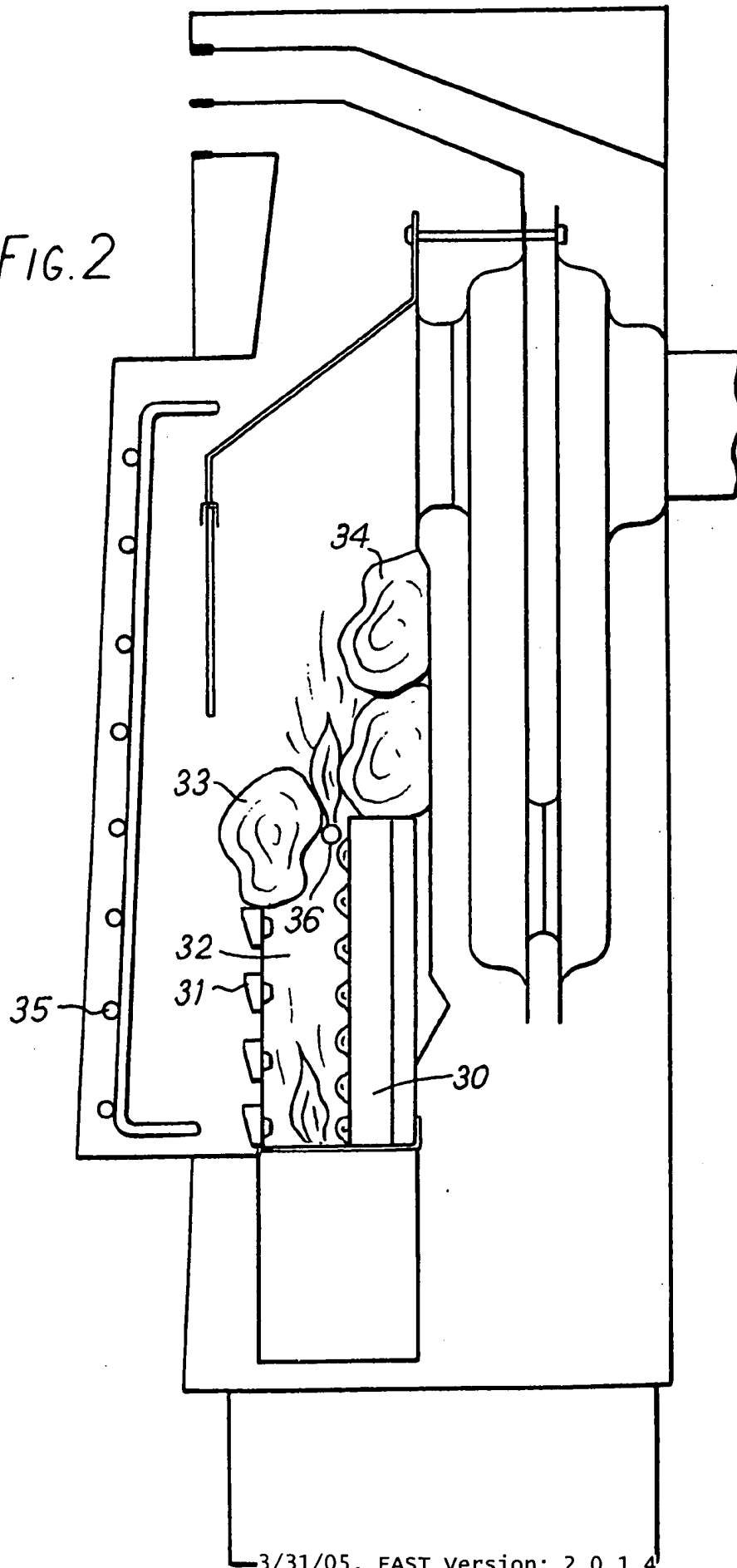
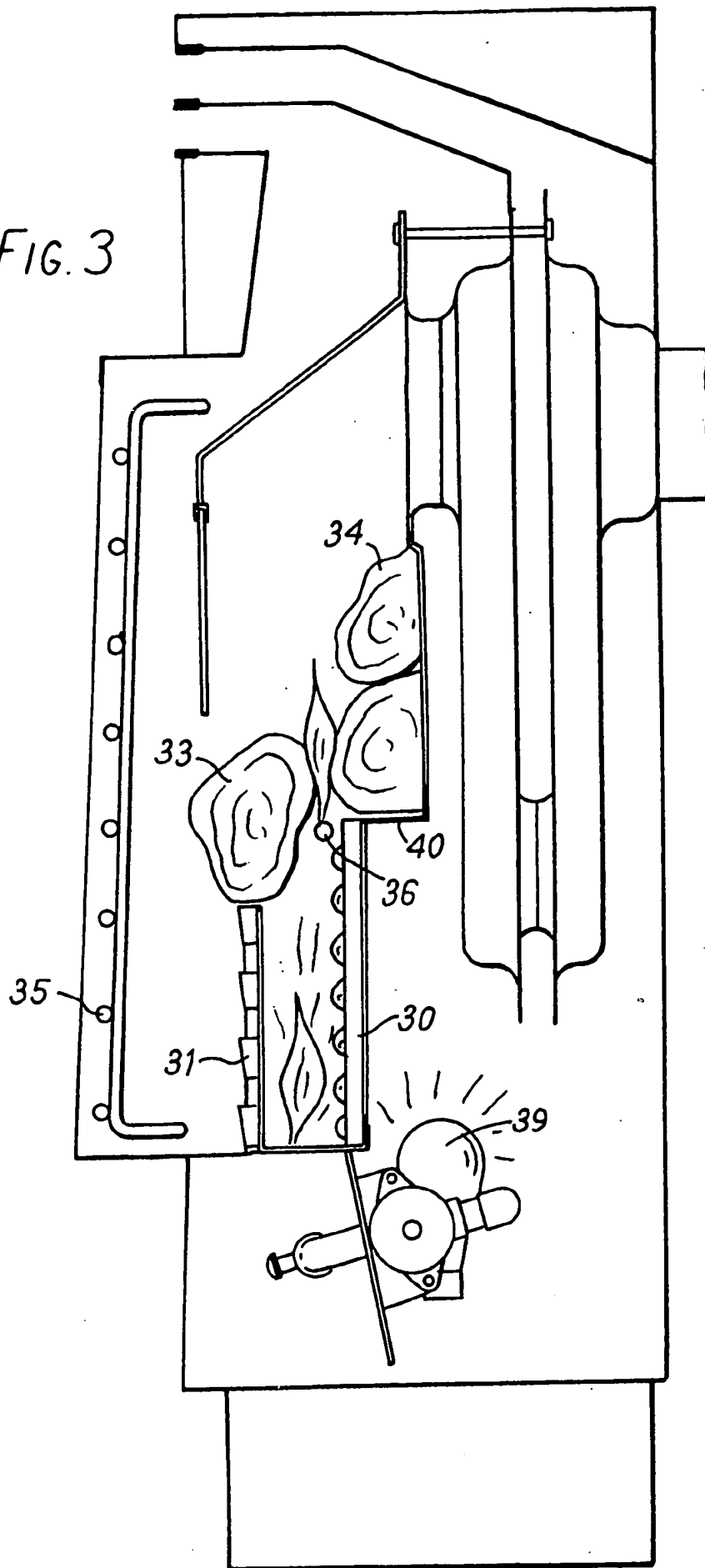


FIG. 3



30 - Radiant
w/ PAS gauges

FIG. 3a

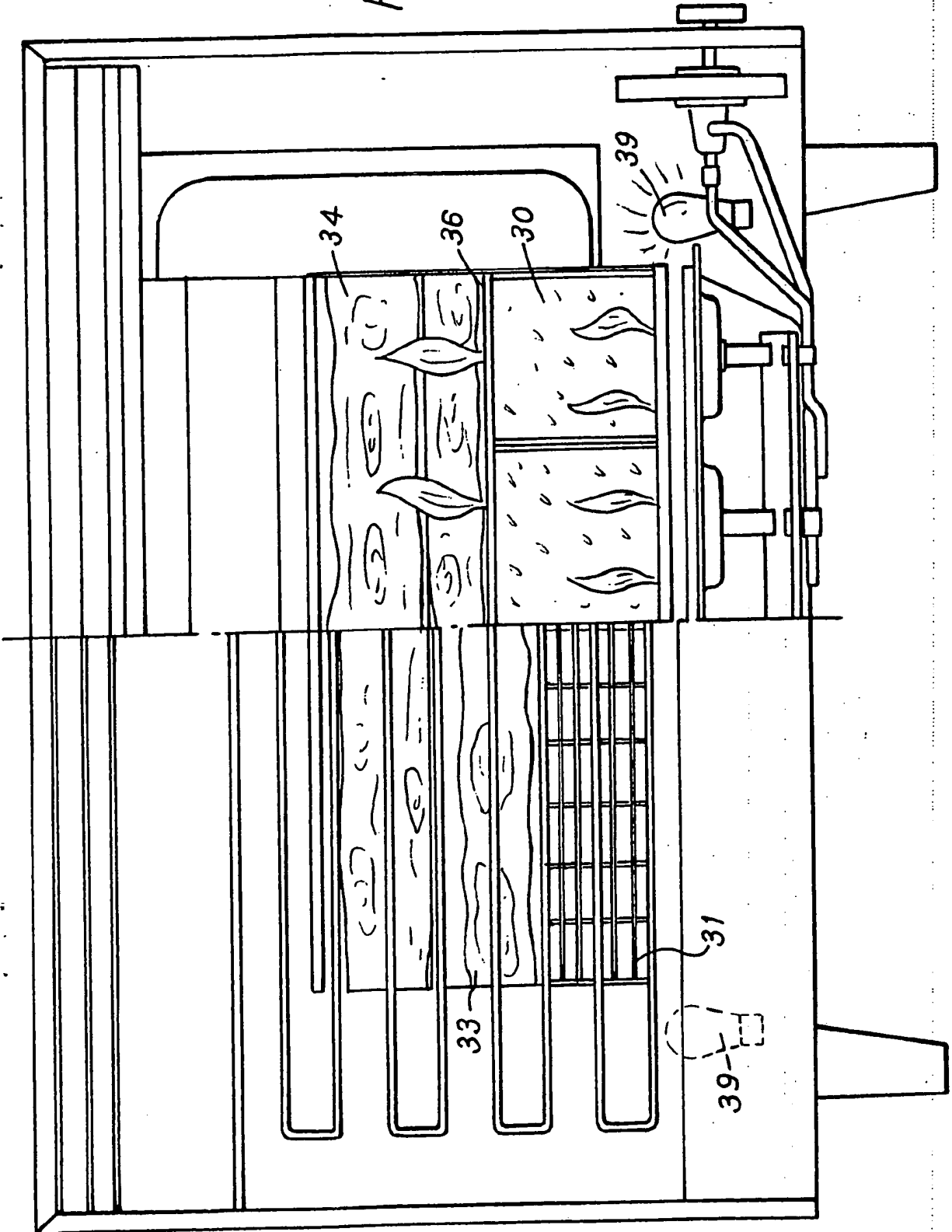
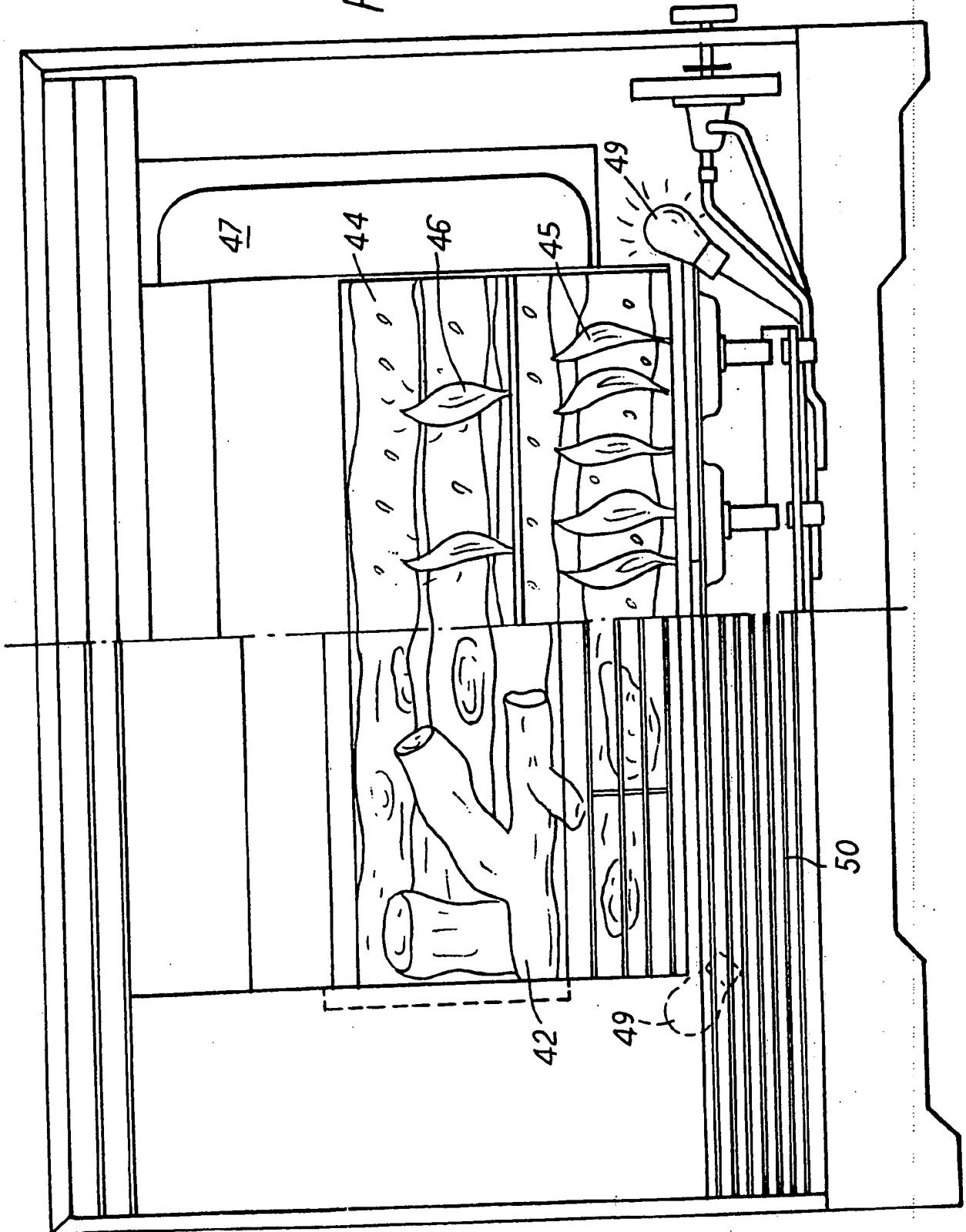


FIG. 4a



SPECIFICATION

Fuel effect gas fires

- 5 This invention relates to gas fires providing a simulated fuel effect.

The invention provides a gas fire having one or more substantially vertically-disposed radiants, simulated fuel either integral with or adjacent to the radiants, one or more aerated gas burners located at the lower end of the radiants to heat the radiants and one or more non-aerated gas burners located above the aerated gas burners so that their flames flicker about the simulated fuel.

- 15 Preferably the overall height of the radiants and simulated fuel is of the order of twice the front-to-back depth, e.g., in the range between 1.5:1 and 3:1.

The or each vertically-disposed radiant may comprise a vertical passageway defined between a solid back wall and a perforated front wall, the upper end of the passageway comprising an opening or openings between pieces of simulated fuel through which exhaust gas may flow, the non-aerated burner or burners being located so that it directs flame

- 25 through said opening or openings.

The front wall of each radiant may be formed as a simulation of a fire grate with fuel heaped above it. Simulated fuel pieces may be located above the fire grate, and above the back wall of the radiant.

- 30 Preferably the simulated fuel pieces lie in front of the vertical plane of the back wall of the radiant or radiants, or substantially so.

Preferably the gas fire has a heat exchanger in which exhaust gas passes in convection with room

- 35 air.

There may be an electric lamp adjacent the bottom end of the radiant or radiants located to shine through the radiant and/or to illuminate an area beneath the radiant. Said area may comprise a

- 40 simulation of a firegrate.

Some specific embodiments of the invention are shown in the accompanying drawings, in which:-

Figure 1 is a side section through a first gas fire,

Figure 1a is a front view, partly in section, of the

- 45 fire of *Figure 1*,

Figure 2 is a side section through a second gas fire,

Figure 3 is a side section through a third gas fire,

Figure 3a is a front view, partly in section, of the

- 50 gas fire of *Figure 3*,

Figure 4 is a side section through a fourth gas fire and,

Figure 4a is a front view, partly in section, of the gas fire of *Figure 4*.

- 55 Referring first to *Figures 1* and *1a*, the gas fire shown has conventional radiants 11 forming vertical passageways through which hot gas from aerated burners 12 passes. Each radiant has a solid vertical back 13 with protrusions into the gas path, and a
- 60 perforated front 14 sloping back at a small angle to the vertical. Hot gas in the radiant heats the protrusions to a red glowing condition and heat is radiated forward through the perforations in the front 14.

Above and behind the radiator 31/05, EAST Version: 2.0.1.4

in heat exchange with convected air which enters the space to be heated through grill 17.

- In front of the radiants 11 is a supporting grill 18 of spaced bars simulating a fire grate, on which rest front ceramic log simulations 19. The spaces between the bars allow the passage of radiated heat from the radiants 11. Above the radiants and behind the front log simulations 19 are back log simulations 20. These may be secured to the radiants or to a back part of the fire. Spaces are left between the log simulations at the top of the radiants to allow passage to the exhaust gases.

- At the top front of the radiants 11 is a non-aerated burner bar 21 which extends across the fire and has a number of burner openings therein, providing flames 22 which flicker between the log simulations. The burner openings may be irregularly spaced and directed in different directions to provide a more realistic appearance. A glass panel 23 partially closes the front of the fire to control the air flow, but allows air to enter the upper part of the radiants 11 to feed the non-aerated burners.

- Beneath the radiants a pair of electric lamps 24 shine up through a translucent panel 25 to illuminate the area behind the grill 18. Red or orange lamps are preferred so that a warm glow is seen through the grill enhancing the effect of the heated radiants.

- It will be noted that the front-to-back dimension of the fire is not appreciably more than that of a conventional gas fire. This is achieved because the fuel simulation lies above and in front of the radiants, extending substantially vertically. The majority of the fuel simulation lies in front of the vertical plane of the back walls of the radiants. This allows the lower part of the vertical radiants, which are the hottest parts, to radiate reasonably freely through the open grill 18, so providing a good heating effect. The upper part is then used to provide the ceramic logs and flickering flame, in a natural-looking position without interfering with the radiation from the lower part. It will be noted that the overall height of the radiant and fuel simulation part of the fire is about twice its front-to-back depth.

- Figure 2* shows a gas fire similar to that of *Figures 1* and *1a* in which the front face of each radiant 30 is combined with the grill of the fire of *Figures 1* and *1a*, so that the front face itself comprises spaced fire bar simulations 31. Each radiant 30 has both its front and rear walls vertical so that the internal passageway 32 is vertical and does not converge. Ceramic front logs 33 rest above or are integral with the front wall of the radiants while back logs 34 are supported on the rear wall or on a back part of the fire in like manner to the fire of *Figures 1* and *1a*. This fire has no illuminated base. A fireguard 35 closes the whole of the front.

- A non-aerated burner bar 36 extends across the fire close to the upper edge of the rear wall of the radiants and provides flames 37 flickering through the ceramic logs.

Because the front grill of *Figures 1* and *1a* is integrated into the radiants, this fire has a yet more advantageous front-to-back depth. The proportion of front-to-back depth here is approximately 2.9:1.

Figures 2 and *3a* is very similar to

Fig 3-3a

that of Figure 2 and carries the same reference numerals. This fire however has additional illumination through a pair of coloured electric lamps 39 located either side of the radiants to shine through the passageways in the radiants and improve the glowing effect through the fire bars. The depth of the fuel simulation is increased somewhat by providing a narrow ledge 40 extending back from the vertical plane of the rear walls of the radiants, but still the majority of the fuel simulation lies in front of that plane.

Figures 4 and 4a show a gas fire in which the whole of the forward-facing surfaces of the radiants are made to simulate logs. The radiants are formed in several pieces, a back wall 41 having protuberances 44 shaped to look like logs, and several separate ceramic logs 42 heaped in front of the back wall to form therewith a vertical passageway 43. In use the radiants, particularly protuberances 44 glow, radiating heat through irregular openings between the front logs 42.

Aerated flame 45 provides most of the heating effect in the passageway, while a non-aerated flickering flame 46 is located about halfway up the back wall 41. Heat from the exhaust gases is extracted in heat exchanger 47. Electric lamps 49 shine through a grill 50 beneath the radiants which gives the effect of a firegrate beneath the logs 42 and also illuminate the radiants themselves. A glass panel 51 partially closes the upper front of the fire, while a fire guard 52 protects the lower front of the fire.

The height to depth proportions of the fuel effect/radiant area of this fire (excluding the illuminated grill 50) are about 1.8:1. In this fire all of the fuel simulation is in front of the vertical plane of the rear wall of the radiants.

CLAIMS (Filed on 9/7/81)

1. A gas fire having one or more substantially vertically-disposed radiants, simulated heat-resistant fuel either integral with or adjacent the radiant, one or more aerated burners located at the lower end of the radiants and directed substantially vertically to heat the radiants and one or more non-aerated gas burners located above the aerated gas burners so that their flames flicker about the simulated fuel.

2. A gas fire as claimed in claim 1, wherein the or each radiant comprises a vertical passageway defined between a solid back wall and a perforated front wall, the upper end of the passageway comprising an opening or openings extending through the simulated fuel through which exhaust gas may flow.

3. A gas fire as claimed in claim 2, wherein said non-aerated burner or burners are located in said passageway so as to direct flame through said opening or openings.

4. A gas fire as claimed in any of claims 1 to 3, having also a glass panel partially closing the front thereof to control air flow.

5. A gas fire as claimed in claim 4, wherein said glass panel closes the upper part of the fire leaving the lower part of the fire unob

6. A gas fire as claimed in any of claims 2 to 5, wherein said simulated fuel comprises pieces simulating logs or coal or coke piled above said radiant or radiants and substantially in front of the plane of the back wall of the or each radiant whereby to increase the height of the fire without substantially increasing its front-to-back dimension.

7. A gas fire as claimed in claim 6, wherein the front wall of the radiant or radiants simulates a fire grate.

8. A gas fire as claimed in claim 6, wherein an open grill is located in front of the lower part of said front wall of the radiant or radiants and pieces of simulated fuel are supported on top of said grill and in front of the upper part of the radiant or radiants.

9. A gas fire as claimed in claim 6 as appendant to claim 5, wherein said glass panel extends down from the top of the fire ending above the top of the radiant or radiants, whereby the forward passage of radiant heat from the radiant or radiants is not obstructed by glass.

10. A gas fire as claimed in any of claims 2 to 5, wherein said radiant or radiants each comprise a back wall formed in one piece to simulate fuel and a front wall formed from separable pieces of simulated fuel piled up to leave irregular openings therebetween and to define said vertical passageway.

11. A gas fire as claimed in any of claims 1 to 10, wherein there is electric lamp means adjacent the bottom of the radiant or radiants located to shine through the radiant or radiants.

12. A gas fire as claimed in any of claims 1 to 11, wherein there is electric lamp means beneath the radiant or radiants to provide an extended illuminated area beneath the radiant or radiants.

13. A gas fire as claimed in claim 12, wherein said extended illuminated area has a grill at its front giving the effect of a firegrate.

14. A gas fire as claimed in any of claims 1 to 13, including a heat exchanger and an air passage through which convected air passes in heat exchange with the exhaust gas.

15. A gas fire as claimed in any of claims 1 to 14, in which the overall height of the radiant or radiants and the simulated fuel is of the order of twice the front-to-back dimension.

16. A gas fire substantially as described hereinbefore with reference to Figures 1 and 1a or to Figure 2 or to Figures 3 and 3a or to Figures 4 and 4a of the accompanying drawings.